

Conservative treatment normalizes head shape in most infants with skull flattening

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More than three-fourths of infants with skull flattening related to sleep position achieve normal head shape with conservative treatment—without the need for helmet therapy, reports a study in the March issue of *Plastic and Reconstructive Surgery*, the official medical journal of the American Society of Plastic Surgeons (ASPS).

With the addition of helmet therapy for infants with persistent [skull](#) flattening, multidisciplinary treatment for positional cranial deformity (PCD) has a success rate of over 90 percent, according to the new research by ASPS Member Surgeon Frank A. Vicari, MD, and colleagues of Ann and Robert H. Lurie Children's Hospital of Chicago. The largest study of PCD treatment to date, the results show the effectiveness of both conservative and helmet therapy, as confirmed by objective measurements.

Treatment for PCD—Outcomes in More Than 4,000 Infants

Dr. Vicari and colleagues analyzed their experience with 4,378 infants with flattening of one side of the head (plagiocephaly) or of the back of the head (brachycephaly). These problems occur when the baby always sleeps in the same position, causing pressure on the same spot on the skull.

Positional skull deformities have become more common since the

recommendation to place babies on their backs to sleep. The "Back to Sleep" campaign (now called "[Safe to Sleep](#)") has been highly effective in lowering nationwide rates of sudden infant death syndrome (SIDS).

The researchers compared final skull shape for nearly 3,000 infants initially receiving conservative therapy for PCD and nearly 1,000 infants receiving helmet therapy. Conservative treatment consists of advice and/or physical therapy, including steps to keep the baby from lying in the same position all the time and to encourage daily "tummy time" when the baby is awake.

Helmet therapy consists of a soft, custom-made orthosis to help shape the developing skull. Treatments weren't randomly assigned—rather, the decision was made by a pediatric plastic surgeon after thorough assessment by a multidisciplinary treatment team, with strong consideration of parent preferences. Final skull shape was objectively measured using 3D laser surface scanning.

Conservative treatment normalized skull shape in 77 percent of infants. About 16 percent of infants initially assigned to [conservative treatment](#) were switched to helmet therapy. The remaining seven percent had "incomplete correction" of skull flattening.

If Conservative Treatment Fails, Helmets Are Still Effective

For infants initially treated with helmet therapy, the rate of complete correction was 94 percent. The success rate was also very high—96 percent—in approximately 500 infants who were switched to helmet therapy who didn't improve after a few months of conservative treatment. "In the majority of infants, delaying helmet therapy for a trial of conservative treatment does not preclude the achievement of

complete correction," Dr. Vicari and coauthors write.

The study identified some key risk factors for failed treatment of PCD. For both conservative and helmet therapy, failure rates were higher for parents with "poor compliance"—who didn't follow advice regarding repositioning or helmet wear. Risk was also higher for infants with more severe deformities, older age when starting treatment, and the presence of congenital torticollis (a condition in which the head is tilted to one side).

In a special expert commentary video on the *Plastic and Reconstructive Surgery* website, Dr. Kant Lin emphasizes that the study does not make "any conclusive statement about the superiority of one treatment method over the other." Rather, he states, "This information can be used to help pediatricians to reassure parents about the likelihood of a completely successful [treatment](#) of their child's skull deformity." Dr. Lin also comments that [infants](#) with PCD "are best evaluated by a multidisciplinary trained team of surgeons, nurses, physical therapists, and orthotists."

More information: Click [here](#) to read "Effectiveness of Conservative Therapy and Helmet Therapy for Positional Cranial Deformation."

Provided by Wolters Kluwer Health

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